Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Drinking Water Program

Information on Seasonal Start-up Procedure and Certification

for Non-Community Public Water Systems

Start-up at a seasonal public water system (PWS) is the opportune time for a thorough examination of the water system's physical components. If repairs are needed, they can be accomplished prior to the start of the season without being an imposition on customers. Properly maintained systems are less likely to have water quality problems that can lead to unsatisfied customers as well as increased regulatory oversight.

A seasonal system is "A non-community public water system (PWS) that is not operated on a year-round basis and starts up and shuts down at the beginning and end of each operating season must follow a state-approved start-up procedure prior to placing all or any part of the system back into service". **The United States Environmental Protection Agency's *Revised Total Coliform Rule* (RTCR) requires seasonal water suppliers to implement a "State-approved start-up procedure".** This requirement was put in place to provide additional public health protection by offsetting an increased contamination risk in water systems where piping and other system components are depressurized. The following information has been developed to assist public water suppliers comply with the RTCR and to help them maintain their valuable water systems.

It should be remembered that the sanitary condition of distribution system piping and components observed at the time of start-up is a reflection of the condition in which the system was depressurized at the time of shutdown. While a "shut down plan" is not part of the seasonal start-up procedure, it is strongly encouraged to leave piping and components in as sanitary condition as possible. It is also important to keep in mind that properly licensed professionals are required when plumbing and well repair work is done.

MassDEP Approved Start-up Procedure

Seasonal systems are required to start up with a state-approved procedure at the beginning of each operating season prior to making water available to the public. The MassDEP must receive certification from the water supplier that this has been completed. **An approved procedure consists of the following elements: a system inspection, an integrity check, and a thorough system flushing and coliform bacteria water testing prior to serving water to the public**. It is recommended that the start-up procedure also include water system disinfection. Recommending disinfection rather than requiring it provides some flexibility in the procedure in the event that the pre-opening time period is shortened due to a late spring. See

the *Seasonal Non-community Public Water System Start-up Activities* checklist for specific information on the MassDEP approved procedure.

1. System Inspection - Required

Look for any damage or evidence of contamination that may have occurred during the off-season. Inspect the wellhead(s) and verify that the well casing is structurally sound, the well cap is tightly attached, vents are downturned with intact screens, and electrical conduit is securely in place. Water treatment equipment and storage tanks need to be assessed. Do a walk-through of the water distribution and plumbing systems. Look at pipes, valves, and backflow prevention devices. Ensure that valves are exercised (turned off and on). Repair/replace as needed.

2. Integrity Check - Required

Leaks in the system, especially in buried piping, provide potential conduits for contaminants to enter when the system is drained or when system pressure is lost. To help gain a better understanding of leakage within the distribution system(s), conduct an integrity check once the system is re-pressurized. After filling with water and with all the taps turned off, switch off the power supply to the well pump. Read the system's pressure gauge and write down the initial system pressure. After one hour, read the pressure gauge again and document the system pressure. Pressure loss over this one hour time span indicates leaks. Some system leakage is expected however locating and repairing leaks is strongly recommended. Ensure that repaired/replaced distribution system components are properly disinfected (see system disinfection below). Having the ability to isolate and then retest portions of the system (rather than the entire distribution system) can assist in locating leaks. Comparing pressure loss data from year to year can provide insight into the relative degree of leakage within the distribution systems. **I**f a functional pressure gauge is lacking, a distribution integrity check can be accomplished by documenting the number of well pump on/off cycles that occur over a one hour period when no water is being used - a cycling well pump indicates leaks. Systems with pressure tank working volumes that exceed the volume of leaking water will not experience pump cycling.

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3. Flushing – Required

Flushing is essential maintenance; it removes contaminants and debris from the system. Flush all wells and water mains for a minimum of 30 minutes. Waste this water to the ground surface rather than into a sewage treatment system. Be aware that adequate flow is necessary to effectively flush lines, therefore open sufficient taps to obtain maximum flow rate. If possible, flushing should progress from taps closest to the well and end at taps furthest from the well to ensure that clean water is used during flushing. Flush all service lines and building plumbing for a minimum of five minutes and the water runs clear. Prior to flushing, all faucet strainers and shower heads should be removed and cleaned. Large distribution systems may need to be flushed in sections one at a time in order to achieve adequate flow rates for effective flushing.

4. Water System Testing - Required

Water samples will be collected every month for total coliform bacteria testing during the operating season, however, it is required that all PWS collect and test their drinking water prior to opening for the season. This can help identify any water quality problems before opening and serving the public. If the water system was disinfected assure that all the chlorine is flushed from the system prior to collecting the sample to be analyzed. A chlorine test kit or test strips should be used to assure there is no chlorine residual in the water system. A list of laboratories certified to perform total coliform bacteria analyses on drinking water is located at:
http://www.mass.gov/eea/agencies/massdep/water/drinking/certified-laboratories.html

5. System Disinfection - Recommended

Water system disinfection is strongly encouraged by MassDEP and is an optional step in the start-up procedure. Many seasonal public water suppliers annually disinfect their water systems. Disinfection kills microorganisms that can be introduced during shut down or the off-season when the system is depressurized. Frequently, water system disinfection can be accomplished by introducing a chlorine/water disinfecting solution directly into the well, running it throughout the system, and allowing adequate contact time before flushing it out. For information on well disinfection see any of the following links:

http://www.mass.gov/eea/agencies/massdep/water/drinking/recommendations-for-private-wells-inundated-by-flooding.html

http://www.who.int/water_sanitation_health/hygiene/envsan/technotes/en/

http://www.mass.gov/eea/docs/dep/water/laws/a-thru-h/glchpt5.pdf (general information in MassDEP guidelines)

http://www.mass.gov/eea/docs/dep/water/laws/a-thru-h/glchpt8.pdf (tank guidelines include a short section on disinfection that references AWWA standard C652)

5. System Disinfection - Recommended (continued)

In some instances introducing a disinfecting solution into certain types of well is not always feasible (e.g. flowing wells, wells containing drawdown seals, wells with packer-jets) or desirable due to the potential to cause corrosion or sedimentation within the well. In these cases, the distribution system can be disinfected without introducing a disinfecting solution into the well itself. Consult with a professional to determine how disinfecting the distribution system (and not the well) can be best accomplished.

If you have any questions about seasonal opening procedures, contact the MassDEP regional office your PWS is located in for additional information.

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